

In Praise of the Cognitive Emotions*

The mention of cognitive emotions may well evoke emotions of perplexity or incredulity. For cognition and emotion, as everyone knows, are hostile worlds apart. Cognition is sober inspection; it is the scientist's calm apprehension of fact after fact in his relentless pursuit of Truth. Emotion, on the other hand, is commotion—an unruly inner turbulence fatal to such pursuit but finding its own constructive outlets in aesthetic experience and moral or religious commitment.

Strongly entrenched, this opposition of cognition and emotion must nevertheless be challenged for it distorts everything it touches. Mechanizing science, it sentimentalizes art, while portraying ethics and religion as twin swamps of feeling and unreasoned commitment. Education, meanwhile—that is to say, the development of mind and attitudes in the young—is split into two grotesque parts—unfeeling knowledge and mindless arousal. My purpose here is to help overcome the breach by outlining basic aspects of emotion in the cognitive process.

Some misgivings about this purpose will, I hope, be allayed by a preliminary word. My aim, to begin with, is not reductive; I am concerned neither to reduce emotion to cognition nor cognition to emotion—only to show how cognitive functioning employs and incorporates diverse emotional elements—these elements themselves acquiring cognitive significance thereby. I am emphatically

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Emotions in the Service of Cognition

Considering now the various roles of emotion in cognition, I divide the field, for convenience, into two main parts, the first having to do with the organization of *emotions generally* in the service of critical inquiry, and the second having to do with *specifically cognitive emotions*. Under the first rubric I shall treat: (a) rational passions,² (b) perceptive feelings, and (c) theoretical imagination, and I turn first to the rational passions, that is to say, the emotions undergirding the life of reason.

Rational Passions The life of reason is one in which cognitive processes are organized in accord with controlling rational ideals and norms. Such organization involves characteristic patterns of thought, action, and evaluation comprising what may be called rational character. It also thus requires suitable emotional dispositions. It demands, for example, a love of truth and a contempt of lying, a concern for accuracy in observation and inference, and a corresponding repugnance of error in logic or fact. It demands revision at distortion, disgust at evasion, admiration of theoretical achievement, respect for the considered arguments of others. Failing such demands, we incur rational shame; fulfilling them makes for rational self-respect.

Like moral character, rational character requires that the right acts and judgments be habitual; it also requires that the right emotions be attached to the right acts and judgments.³ "A rational man," says R. S. Peters, "cannot, without some special explanation,

² On this topic see R. S. Peters, "Reason and Passion," in *Education and the Development of Reason*, eds. R. Dearden, P. H. Hirst, and R. S. Peters (London, U.K.: Routledge and Kegan Paul, 1972), especially the section on the rational passions, pp. 225-27. See also John Rawls, *A Theory of Justice* (Cambridge, Mass.: Harvard University Press, 1971), especially sections 67, 73-75; P. Foot, "Moral Beliefs," *Proceedings of the Aristotelian Society*, 59, 1958-1959; and B. A. O. Williams, "Morality and the Emotions," in *Problems of the Self*, B. A. O. Williams (Cambridge, U.K.: Cambridge University Press, 1973). A significant recent book, dealing with a wide range of related topics, is Robert C. Solomon, *The Passions* (New York: Doubleday, Anchor Press, 1976).

³ Cf. Aristotle, *Nicomachean Ethics*, Book II, 3.

Fear of a particular person, for example, presupposes that that person is regarded as dangerous—a danger being a critical feature of the environment calling for a special orientation in response. There need, however, be no *independent* evidence, in every case, of the threat we sense. The characteristic feeling that has become associated for us with fear, when it actually serves us as a cue. Interpreting that feeling as fear, we at once characterize our own state and ascribe danger to the environment. Indeed, we may then proceed to an explicit attribution of danger, prompted by cues of

⁴ Related points are discussed in Peters, "Reason and Passion"; R. S. Peters, "The Education of the Emotions," Dearden, Hirst, and Peters, *Education and the Development of Reason*; G. Fichtel, "Emotion," Dearden, Hirst, and Peters, *Education and the Development of Reason*; and R. W. Hepburn, "The Arts and the Education of Feeling and Emotion," Dearden, Hirst, and Peters, *Education and the Development of Reason*. See also the article by W. P. Alston, "Emotion and Feeling," in *The Encyclopedia of Philosophy* (New York: Macmillan, 1967), vol. 2, pp. 479-86.

Reading our feelings and reading the work are, in general, virtually inseparable processes.

The cognitive role of the emotions in aesthetic contexts has been emphasized by Nelson Goodman in a recent discussion. He writes,

The work of art is apprehended through the feelings as well as through the senses. Emotional numbness disables here as definitely if not as completely as blindness or deafness. Nor are the feelings used exclusively for exploring the emotional content of a work. To some extent, we may feel how a painting looks as we may see how it feels. The actor or dancer—or the spectator—sometimes notes and remembers the feeling of a movement rather than its pattern, insofar as the two can be distinguished at all. Emotion in aesthetic experience is a means of discerning what properties a work has and expresses.⁵

The general point is, of course, not limited to the aesthetic realm since, as I have earlier emphasized, the emotions intimately mesh with all critical appraisals of the environment: The flow of feeling thus provides us with a continuous stream of cues significant for orientation to our changing contexts. Indeed, as Goodman remarks,

In daily life, classification of things by feeling is often more vital than classification by other properties: we are likely to be better off if we are skilled in fearing, warning, braving, or distrusting the right things, animate or inanimate, than if we perceive only their shapes, sizes, weights, etc. And the importance of discernment by feeling does not vanish when the motivation becomes moral rather than practical. . . . Indeed, in any science, while the requisite objectivity forbids wishful thinking, prejudicial reading of evidence, rejection of unwanted results, avoidance of ominous lines of inquiry, it does not forbid use of feeling in exploration and discovery, the impetus of inspiration and curiosity, or the cues given by excitement over intriguing problems and promising hypotheses.⁶

Theoretical Imagination Mention of the context of theory brings us to the third role of emotions in the service of cognition, that of stimulus to the scientific imagination. This role is virtually

⁵ Nelson Goodman, *Languages of Art* (Indianapolis, Ind.: Hackett Publishing Co., 1968, 1976), p. 248.

⁶ *Ibid.*, p. 251.

a ring by seizing hold of its own tail and then whirled mockingly before him. Kekulé awoke in a flash: he had hit upon the now famous and familiar idea of representing the molecular structure of benzene by a hexagonal ring. He spent the rest of the night working out the consequences of this hypothesis.⁷

The emotions serve not merely as a source of imaginative patterns; they fulfill also a *selective* function, facilitating choice among these patterns, defining their salient features, focusing attention accordingly. The patterns developed in imagination, that is, carry their own emotive values; these values guide selection and emphasis. They help imagined patterns to structure the phenomena, highlighting factual features of interest to further inquiry. "Passions," as Michael Polanyi has said, "charge objects with emotions, making them repulsive or attractive. . . . Only a tiny fraction of all knowable facts are of interest to scientists, and scientific passion serves. . . as a guide in the assessment of what is of higher and what of lesser interest."⁸

Finally, the emotions play a directive role in the process of applying the fruits of imagination to the solution of problems. The course of problem-solving, as has already been intimated, is continually monitored by the theorist's cues of feeling, his sense of excitement or anticipation, his elation or suspicion or gloom. Moreover, imagined objects encountered in thought by the problem-solver affect his deliberation emotively, as real objects do, and influence his decisions in the objects. "In thought as well as in overt action," says Dewey, "the various experiences in following out a course of action attract, repel, satisfy, annoy, promote and retard. Such deliberation processes."⁹ There is, no doubt, much yet to be learned about the interaction of emotions and imagination in all the ways I have sketched, and in others as well. It should, however, even now, be evident that creation is fed by the

⁷ Carl G. Hempel, *Philosophy of Natural Science* (Englewood Cliffs, N.J.: Prentice-Hall, 1966), p. 16.

⁸ Michael Polanyi, *Personal Knowledge* (New York: Harper & Row, 1958, 1962), pp. 134-35.

⁹ Dewey, *Human Nature and Conduct*, p. 192.

but an emotion of a certain kind, specifiable by its cognitive reference as just explained.¹⁰

The Joy of Verification In his well-known paper of 1934 on "The Foundation of Knowledge,"¹¹ Moritz Schlick provides an example of such a cognitive emotion in outlining his theory of science, giving primary place in his theory to the joy that accompanies the fulfillment of an expectation. Cognition, in Schlick's view, has, from the earliest times, always been predictive but the value of reliable prediction lay originally in its practical service to life. "Now in science," he writes, ". . . cognition . . . is not sought because of its utility. With the confirmation of prediction the scientific goal is achieved: the joy in cognition is the joy of verification, the triumphant feeling of having guessed correctly."¹² Such moments of joy are, in Schlick's opinion, of central importance in understanding scientific progress. "They do not in any way," he says, "lie at the base of science, but like a flame, cognition, and it, flames, licks out to them, reaching each but for a moment and then at once consuming it. And newly fed and strengthened, it flames onward to the next. These moments of fulfillment and combustion are what is essential. All the light of knowledge comes from them."¹³

Now one need not agree with Schlick's general view of science in order to acknowledge that the satisfaction of a theoretical forecast may indeed occasion joy. Nor is it required that we concur with the extravagant suggestion that all predictive success brings elation. It may, for example, be countered that routine successes based on theory frequently, perhaps typically, go unnoticed, while

¹⁰ For discussion helpful in clarifying certain points in this section, I am grateful to Professors Eli Hirsch and Jonas Soltau.

¹¹ Moritz Schlick, "Über das Fundament der Erkenntnis," *Erkenntnis*, vol. 4, 1934, trans. as David Ryman, "The Foundation of Knowledge," in *Logical Positivism*, ed. A. J. Ayer (New York: Free Press, 1959).

¹² Schlick, *Über das Fundament der Erkenntnis*, in Ayer, *Logical Positivism*, pp. 222-23. There is a general discussion of Schlick's paper in chapter 5 above.

¹³ Schlick, "Über das Fundament der Erkenntnis," in Ayer, *Logical Positivism*, p. 227.

Some philosophers have further maintained that scientific observation itself is *systematically* theory-laden¹⁴—inferred we are, suggested, so blinded by our own theoretical beliefs as to be incapable of acknowledging anything that might contradict them, we can hardly take the joy of verification to represent a cognitive triumph of science. Rather, we must count it an unearned and deluded joy, resulting not from a happy match between theory and experience but solely from our desperate rigging of experience to make it fit.

This conclusion, as I have elsewhere argued, seems to me too extreme for the facts.¹⁵ It is undeniable that our beliefs greatly influence our perceptions, but neither psychology nor philosophy offers any proof of a preestablished harmony between what we believe and what we see. Expectations have the function of orienting us selectively toward the future, but this function does not require that they blind us to the unforeseen. Indeed, the presumption of mismatch between experience and expectation underlies another cognitive emotion: *surprise*. The existence of this emotion testifies that we are not, in principle, beyond acknowledging the predictive failures of our own theories, that we are not debarréd by nature from capitalizing upon such failures in order to learn from experience. The genius of science is, in fact, to institutionalize such learning by wedding the free theoretical imagination to the rigorous probing for predictive failures.

The Significance of Surprise Surprise is a cognitive emotion, resting on the (epistemologically relevant) supposition that what has happened conflicts with prior expectation. Without such presumption, surprise cannot be supposed to occur, although the truth of the presumption may, of course, be questioned in particular cases. Surprise must, in any event, be confused with mere novelty. A novel—that is to say, a hitherto unencountered—contingency may well be anticipated in thought, while a familiar phenomenon, juxtaposed with discoverable (or predictable) surprise.

¹⁴ See N. R. Hanson, *Patterns of Discovery* (Cambridge, U.K.: Cambridge University Press, 1958), pp. 18-19, and elsewhere. For a general discussion see chapters 1 and 2 above.

¹⁵ *Ibid.*, chapter 2.

Surprise in life to be thus amusing or pleasant; it must be considered that a general openness to surprise involves a real risk of epistemic distress. This risk may to varying degrees become palatable, even exciting; certainly accepting it is one of the normal requirements of rational character. Yet it is a risk of possibly painful disorientation, and it requires emotional strength to face and to master. To commit oneself to learning from experience is, in short, a significant attitude—supported by mature reflection, to be sure—but exacting a price in return for the prospect of improvement in one's system of beliefs.

Three alternative attitudes promise an avoidance of the price by erecting wholesale defenses against surprise. Since surprise presumes prior expectation, a defense may be sought, to begin with, in the rejection of all expectation—in effect, the denial of all belief. This is the attitude of the radical skeptic, who hopes to make himself immune to surprise by any contingency through renouncing all anticipations to the contrary, that is to say, all anticipations without exception. Of whatever happens, he says, in effect, "It doesn't surprise me since I never expected it not to happen!" A second—surprisingly opposite—attitude is that of outer credulity or gullibility—the acceptance of all beliefs or expectations without distinction. Here the formula in response to every contingency is "I'm not surprised! I expected that too!" Both radical skepticism and radical credulity are, however, alike forms of epistemic apathy: To reject all expectations is to be indifferent to each, while to accept all as equally good is in actuality to choose none, having no reason to expect anything at all rather than something else. It is no wonder that these seemingly contrary attitudes have so often been remarked to be psychologically akin, and together opposed to the selective hypothesis-formation characteristic of scientific thought. "Complete doubt," as Peirce noted, is "a mere self-deception and no one who follows the method of radical skepticism

¹⁶ Schlick, "Über das Fundament der Erkenntnis," in Ayer, *Logical Positivism*, p. 223.

Achieving superordinate status in the economy of science, the value of inquiry becomes, indeed, autonomous, pressing new explanations deliberately into situations of risk, testing their vulnerability in novel ways, exposing their implicit predictions systematically to the chance of new surprise.

The constructive conquest of surprise is registered in the achievement of new explanatory structures, while cognitive application of these structures provokes surprise once more. Surprise is vanquished by theory, and theory is, in turn, overcome by surprise. Cognition is thus two-sided and has its own rhythm; it stabilizes and coordinates; it also unsettles and divides. It is responsible for shaping our patterned orientations to the future, but it must also be responsive to the insistent need to learn from the future. Establishing habits, it must stand ready to break them. Unlearning old ways of thought, it must also power the quest for new, and greater, expectations.¹⁷ These stringent demands upon our cognitive processes also constitute a stringent demand upon our emotional capacities. The growth of cognition is, thus, in fact, inseparable from the education of the emotions.

not suggesting that cognitions are essentially emotions, or that emotions are, in reality, only cognitions. Nevertheless, I hold that cognition cannot be cleanly sundered from emotion and assigned to science, while emotion is ceded to the arts, ethics, and religion. All these spheres of life involve both fact and feeling; they relate to sense as well as sensibility.

Secondly, though applauding the cognitive import of emotions, I do not propose to surrender intellectual controls to wishful thinking, nor shall I portray the heart as giving special access to a higher truth.¹ Control of wishful thinking is utterly essential in cognition; it operates, however, not through an unfeeling faculty of Reason but through the organization of countervailing critical interests in the process of inquiry. These interests of a critical intellect are, in principle, no less emotive in their bearing than those of wayward wish. The heart, in sum, provides no substitute for critical inquiry; it beats in the service of science as well as of private desire.

Finally, I concede it to be undeniable that certain emotional states may be at odds with sound processes of judgment and decision making. Overpowering agitations may derail the course of reasoning; greed, jealousy, or lust may mislead; if depression or terror may bring it to a total halt. Conversely, the effect of rational judgment may well be to moderate, even wholly to dissipate, certain emotions by falsifying their factual presuppositions: Anger fades, for example, when it turns out the injury was accidental or caused by someone other than first supposed; fear evaporates when the menacing figure becomes the tree's dancing shadow. It does not follow from these cases, however, that *emotion* as such is uniformly hostile to cognitive endeavors, nor may we properly conclude that *cognition* is, in general, free of emotional engagement. Indeed, emotion without cognition is blind and, as I shall hope particularly to show in the sequel, cognition without emotion is vacuous.

¹ For a discussion of this theme in the context of the history of American thought, see Morton White, *Science and Sentiment in America* (New York: Oxford University Press, 1972).

² Peters, "Reason and Passion," p. 226.

³ John Dewey, *Human Nature and Conduct* (New York: Henry Holt, 1922, 1930), p. 196.

⁴ *Ibid.*

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This coincidence, I emphasize, requires appropriate organization of feelings and sentiments in the interests of intelligent control.

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⁷ *Ibid.*

slap his sides and roar with laughter or shrug his shoulders with indifference if he is told that what he says is irrelevant, that his thinking is confused and inconsistent or that it flies in the face of the evidence."⁴ The suitable deployment in conduct of emotional dispositions such as love and hate, contempt and disgust, shame and self-esteem, respect and admiration indeed defines what is meant, quite generally, by the internalization of ideals and principles in character. The wonder is not that *rational* character is thus related to the emotions but that anyone should ever have supposed it to be an exception to the general rule.

Rational character constitutes an intellectual conscience; it monitors and curbs evasions and distortions; it combats inconsistency, unfairness to the facts, and wishful thinking. In thus exercising control over undesirable impulses, it works for a balance in thought, an epistemic justice, which requires its own special renunciations and develops a characteristic cognitive discipline. There is, however, no question here of the control of impulses through a "bloodless reason,"⁵ as control is exercised through the structuring of emotions themselves. Rationality, as John Dewey put it,

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